RUNOV, M.A.; SEREBRENNIKOV, A.A.; KRAVCHENKO, V.A.

Investigating finely divided granulated ferrosilicon. Porosh. met. 5 no.7:8-12 Jl '65. (MIRA 18:8)

1. UkrNIIspetsstal'.

DEKHANOV, N .M.; BOYTSOV, L.I., kand. tekhn. nauk; KRAVCHENKO, V.A., kand. tekhn. nauk; SNEZHKO, P.F.; ZZL'DIN, V.S.; KHARLAMOV, I.G. [deceased]; RUNOV, M.A.; SEREBRENNIKOV, A.A.; MATYUSHENKO, V.I.

Production of high-quality ferrosilicon powder for heavy suspensions. Met. i gornorud. prom. no.4:14-16 Jl-Ag '65. (MIRA 18:10)

SEREBRENNIKOV, A.B.

Fourth Pirogov Lectures, 1957. Vest. AMN SSSR 13 no.5:81 '58 (MIRA 11:6)

(BLOOD VESSELS--SURGERY)

SEREBRENNIKOV, A.B. (Moskva)

Pirogov lectures delivered in Leningrad. Sov. zdrav. 22 no.6: 96'63. (MIRA 16:9)

(MEDICINE)

SEREBRENNIKOV, A. M.

Serebrennikov, A. M. - "Treatment of star wheels by burnishing method," Trudy Studench. nauch.-tekhn. o-va (Moscow technical college im. Bauman), 1, 1948, p. 97-103

SO: U-4355, 14 August 53, (Letopis 'Zhurnal 'nykh Statey, No. 15, 1949.)

KODANEV, I.M., prof.; SEREBRENNIKOV, A.M., aspirant

Fertilizers for meadows. Zemledelie 27 no.5:72-80 My '65.
(MIRA 18:6)

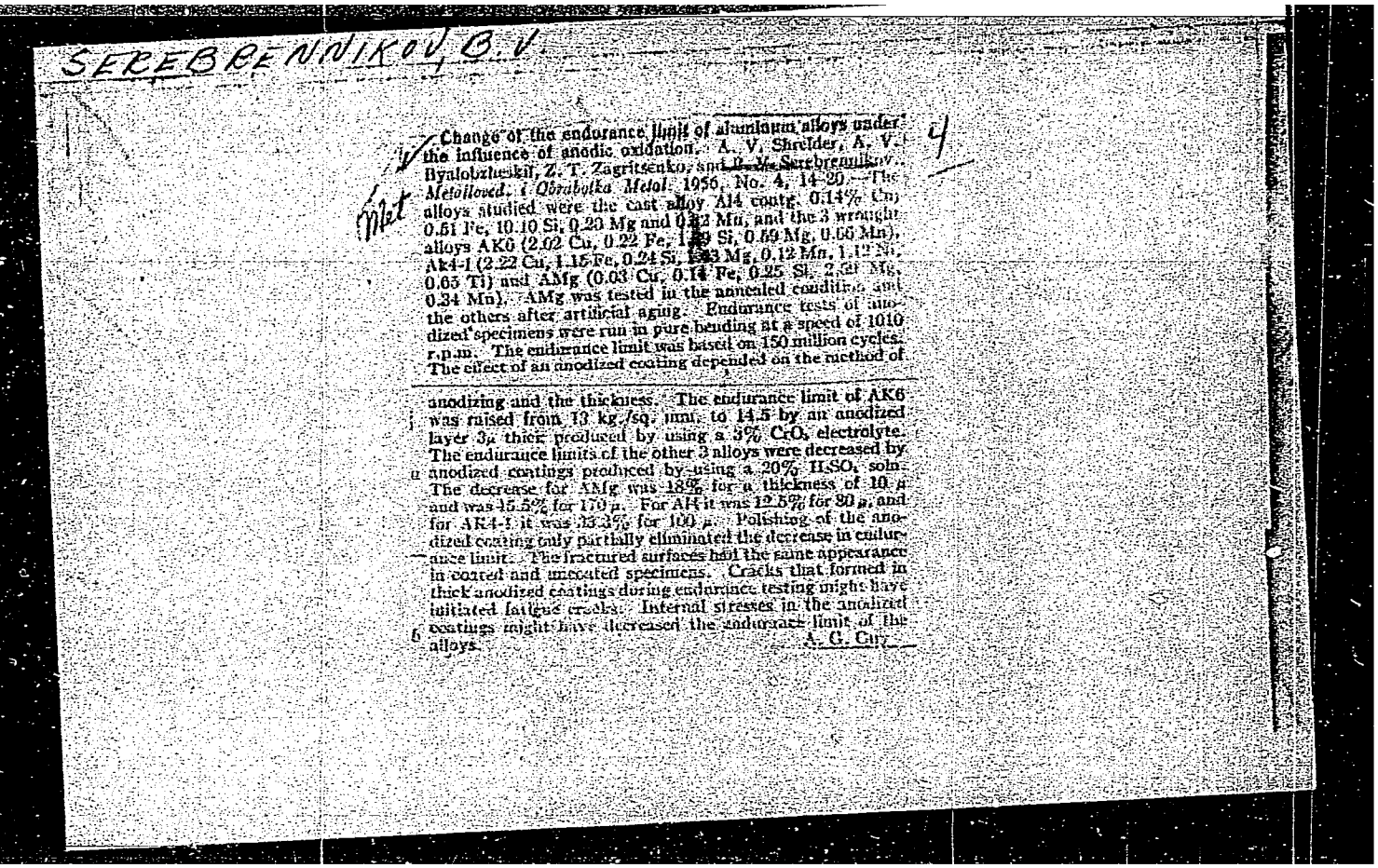
1. Gor'kovskiy sel'skokhozyaystvennyy institut.

SEREBENNIKOV, B.N., inzh.

Pontoon made of prestressed heavy reinforced concrete. Sudostroenie 29 no.9:43-44 S '63. (MIRA 16:11)

SEREBRENNIKOV, B.N., inzh.; LAPIN, Ye.I., inzh.

Results of static testings of an experimental pontoon of pre-stressed heavy reinforced concrete. Sudostroenie 29 no.9:45-48 S '63. (MIRA 16:11)



SEREBRENNIKOV, B. V.

Change of the endurance limit of aluminum alloys under the influence of anodic oxidation. A. V. Shreider, A. V. Byalobzheskii, Z. T. Zagritsenko, and B. Ye. Serebrennikov. *Metallovod. i Obrabotka Metal.* 1956, No. 4, 14-20.—The alloys studied were the cast alloy A14 contg. 0.14% Cu, 0.61 Fe, 10.10 Si, 0.20 Mg and 0.32 Mn, and the 3 wrought alloys AK6 (2.02 Cu, 0.22 Fe, 1.09 Si, 0.59 Mg, 0.66 Mn), AK4-1 (2.22 Cu, 1.15 Fe, 0.24 Si, 1.53 Mg, 0.12 Mn, 1.12 Ni, 0.65 Ti) and AMg (0.03 Cu, 0.14 Fe, 0.25 Si, 2.21 Mg, 0.34 Mn). AMg was tested in the annealed condition and the others after artificial aging. Endurance tests of anodized specimens were run in pure bending at a speed of 1010 r.p.m. The endurance limit was based on 150 million cycles. The effect of an anodized coating depended on the method of anodizing and the thickness. The endurance limit of AK6 was raised from 13 kg./sq. mm. to 14.5 by an anodized layer 3μ thick produced by using a 5% CrO_3 electrolyte. The endurance limits of the other 3 alloys were decreased by anodized coatings produced by using a 20% H_2SO_4 soln. The decrease for AMg was 18% for a thickness of 10 μ and was 15.5% for 170 μ. For A14 it was 12.5% for 80 μ, and for AK4-1 it was 13.3% for 100 μ. Polishing of the anodized coating only partially eliminated the decrease in endurance limit. The fractured surfaces had the same appearance in coated and uncoated specimens. Cracks that formed in thick anodized coatings during endurance testing might have initiated fatigue cracks. Internal stresses in the anodized coatings might have decreased the endurance limit of the alloys.

A. G. Guy

SEREBRENNIKOV, B.V., gornyy inzh.

Auger boring machine for mining low-thickness seams. Ugol' Ukr. (MIRA 12:1)
2 no.12:30-31 D '58.
(Boring machinery)

L 58907-65 EWT(m)/EPF(c)/EWP(j)/T Pc-4/Pr-4 RM

ACCESSION NR: AP5017060 UR/0289/65/000/001/0088/0092
547.381:541.64

AUTHOR: Shostakovskiy, M. F.; Belyayev, V. I.; Okladnikova, Z. A.; Vasil'yeva, L. V.; Serebrennikova, E. V.

TITLE: Polymerization of acrolein under the influence of organomagnesium compounds

SOURCE: AN SSSR. Sibirskoye otdeleniye. Izvestiya. Seriya khimicheskikh nauk, no. 1, 1965, 88-92

TOPIC TAGS: acrolein polymer, organomagnesium compound, polymerization catalyst, Grignard reagent

ABSTRACT: The following polymerization catalysts were considered: ethylmagnesium bromide, isopropylmagnesium bromide, butylmagnesium bromide, isobutylmagnesium bromide, and phenylmagnesium bromide. Isobutylmagnesium bromide produced the highest yield of acrolein polymer (12%), and hence was the only catalyst used in subsequent experiments, which involved the determination of the effect of catalyst concentration, temperature, and duration of the reaction on the polymerization. The acrolein polymers obtained were found to contain 36-41% of unsaturated C=C bonds and 7-8 mole % of free aldehyde groups, which indicates an active participation of these groups in the formation of polymers. Infrared spectra showed the presence of bands at 900-1180, 1690-1720, and

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L 58907-65

ACCESSION NR: AP5017060

1640-1680 cm^{-1}, corresponding to ether groups, aldehyde groups, and C=C bonds, respectively. In addition to solid polymers, 5-20% of low-molecular viscous polymers (MW about 200) were formed. X-ray diffraction analysis showed that the solid polymers consisted of a mixture of amorphous and crystalline structures. Orig. art. has: 2 figures and 3 tables.

ASSOCIATION: Irkutskiy institut organicheskoy khimii Sibirskogo otdeleniya AN SSSR (Irkutsk Institute of Organic Chemistry, Siberian Branch, AN SSSR)

SUBMITTED: 18Nov63 ENCL: 00 SUB CODE: OC

NO REF SOV: 006 OTHER: 010

dm

Card 2/2

PAVLOV, G.N., inzh.; SEREBRENNIKOV, F.V., inzh.

Long-furrow irrigation. Gidr. i mel. 17 no.2:1-3 F '65.
(MIRA 18:5)

1. Sredazgiprovodkhlopok.

SEREBRENNIKOV, G.

Bees - Diseases

Protection of bees against poisoning. Pchelovodstvo No. 2, 1952.

9. Monthly List of Russian Accessions, Library of Congress, May 1952, Uncl.

SEREBRENNIKOV, G., ekonomist

The one-year plan has been carried out ahead of time. Avt. transp. 38 no.1:13 Ja '60. (MIRA 13:5)

1. Vtoraya Pavlodarskaya avtobaza.
(Pavlodar Province--Transportation, Automotive)

SEREBRENNIKOV, G.A., inzhener.

Experience with a wintertime pneumatic method of mortar delivery. Mekh.stroi. 11 no.9:30 S '54. (MLRA 7:9)
(Concrete--Transportation)

SEREBRENNIKOV, G.F.

Use of an ionite unit in laboratory practice. Veterinariia 39 no.12:67-68 D '62. (MIRA 16:6)

1. L'vovskaya laboratoriya po issledovaniyu kozhevennogo i mekhovogo syr'ya.
(Veterinary laboratories--Equipment and supplies)
(Ion exchange)

SEREBRENNIKOV, G.I.

Controlling the headstream runoff of the Iset' River. Vop. vod. khoz. i gidrol. Urala no.2:37-41 '63. (MIRA 18:3)

SEREBRENNIKOV, G.S., inzh.

Calculating thermal stresses caused by fast through heating and cooling of bushings. Trudy MAI no.129:56-71 '60. (MIRA 14:3)
(Thermal stresses)

PODZEY, A.V., SEREBRENNIKOV, G.Z.

Determining residual stresses in shafts subjected to sudden cooling. Stan.i instr. 29 no.12:18-20 D '58. (MIRA 11:12)
(Thermal stresses) (Shafting)

PODZEY, A.V.; SEREBRENNIKOV, G.Z.

Calculating residual thermal stresses in plain shafts. Nauch. dokl.vys.shkoly; mash. i prib. no.1:171-181 '59.
(MIRA 12:8)

1. Stat'ya predstavlena kafedroy "Proizvodstvo aviadvigateley" Moskovskogo aviatsionnogo instituta.
(Thermal stresses)

SEREBRENNIKOV, G. Z., Cand Tech Sci (diss) -- "Investigation of the thermal residual stresses in continuous heaters and coolers for rolls and sheet". Moscow, 1960. 16 pp (Min Higher and Inter Spec Educ RSFSR, Moscow Order of Lenin Aviation Inst im Sergo Ordzhonikidze), 160 copies (KL, No 11, 1960, 134)

24.4200
1.1710

25965
S/535/60/000/129/003/006
E073/E535

AUTHOR: Serebrennikov, G. Z., Engineer

TITLE: Calculation of thermal stresses produced during accelerated through-heating and cooling of bushings

PERIODICAL: Moscow. Aviatsionnyy institut. Trudy, No.129, 1960. Issledovaniye fizikomekhanicheskikh i ekspluatatsionnykh svoystv detaley posle obrabotki, pp.56-71

TEXT: Residual stresses in a finished component are the sum total of the stresses caused by all the technological operations. However, not all the manufacturing operations have an equal influence on the final internal stresses. Particular attention must be paid to the processes which have the greatest effect, for instance, accelerated cooling from high temperatures. Quite frequently such cooling is not accompanied by structural stresses, as for instance in the case of cooling after brazing or during quenching of components from refractory and stainless steels of the type 1Х18Н9Т (1Kh18N9T), cooling after high temperature tempering of constructional steels which are prone to type II temper brittleness etc. It is particularly such processes that

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are considered in this paper. Under high temperature conditions the stresses from previous operations are usually relieved. However, during accelerated cooling new high residual stresses may arise, encompassing a very large section of the component and, in some cases, the entire cross-section. These thermal stresses may reach the yield point of the material. During subsequent machining, a fundamental redistribution of the residual stresses will occur in a 0.4 mm deep layer but the initial thermal stresses may have a great influence on the formation of the new stresses even in this layer. This is the only explanation of the fact observed by I. V. Kudryavtsev and his team that the influence of residual stresses caused by high speed cooling on the fatigue strength of specimens was the same regardless of whether the particular components were subsequently machined or not. In calculating the thermal residual stresses it is essential to take into consideration the initial stresses which remain from previous operations if these have not been relieved. On the other hand, the internal stresses arising during accelerated through-heating and cooling even from temperatures which are not unduly high will influence

greatly the epures of the residual stresses of the components in the finished state. The temperature conditions can be investigated either experimentally or analytically. Experimental investigation of the epures of the residual stresses is very difficult and requires destruction of the components under investigation. Also the experimental results can only be applied under conditions similar to those for which they have been obtained. Therefore, for controlling the residual stresses it is necessary to develop analytical methods of calculation. At present the problem of analytical calculation of thermal residual stresses in a hollow shaft have been little studied and the literature does not contain a general solution of this problem. Existing methods are based on the theory of elasticity and are applicable only for very approximate qualitative investigations. Therefore, as a first step, the authors aimed at giving a general solution for analytical determination of thermal stresses in a hollow shaft during through heating and cooling. This is done applying the general theory of small elastic-plastic strains expounded by A. A. Il'yushing (Ref.5: "Plasticity", Gostekhizdat, 1948) and V. A. Lomakin (Ref.6: Theoretical determination of residual stresses during heat

treatment of metals, Symposium Problemy prochnosti v mashinostroyenii, No.2, Izd.AN SSSR, 1959). The cylinder is placed in a medium having a constant temperature T_c and, at the initial instant of time, its temperature T_H is constant. From then on, the temperature is a function of the radius r and time t only, i.e. $T = f(r,t)$. The initial internal stresses in the cylinder are symmetric relative to the axis and the problem is to determine the subsequent stresses and strains. The cylinder is assumed to be long, i.e. its length is 5-10 times greater than the wall thickness. In earlier papers of the author (Ref.4: Stanki i instrument, 1959, No.9; Ref.11: Izvestiya vysshikh uchebnykh zavedeniy, Mashinostroyeniye, 1959, No.8) a practical method of calculating thermal stresses was presented which was applicable for symmetrical heating and cooling of plates from two sides and the use of this method was described for heating and cooling of thin walled bushings from one side, or from two sides in the case of symmetry. It was thereby assumed that at the beginning the component did not contain initial stresses. The method is now extended to the case of the components which do have initial stresses. Calculations were made for rings with an

internal diameter of 35 mm, an external diameter of 50 mm and a width of 20 mm with a heating temperature of 105°C and these are compared with experimental results. The comparison shows that in a number of cases the here presented approximate method is also applicable for thick walled cylinders. If a higher accuracy is desired, this can be obtained by using the more accurate formula given in the first part of the paper. The author arrives at the following conclusions: The residual stresses after accelerated through-heating and cooling greatly influence the final stresses in a manufactured component and, consequently, have an important effect on the properties during operation. In calculating thermal stresses it is necessary to consider the initial stresses caused by previous operations, if these have not been fully relieved during the process of manufacture. The authors present an analysis of the general problem of elastic-plastic equilibrium of hollow shafts during accelerated through-heating and cooling cycles for the case that these do not undergo structural transformations. Furthermore, methods of simplifying the general problem are elucidated; the initial stresses are taken into

consideration. A practical method is presented for calculating the residual stresses in thin walled bushings, taking into consideration various conditions of heat transfer through the internal and external surfaces and also the existence of initial stresses. Calculated results of the residual stresses after accelerated through heating and cooling of hollow shafts can be used for the purpose of controlling the stresses in highly stressed aviation components in order to increase their dynamic and corrosion-mechanical strength, to ensure stability of dimensions and shape, to reduce weight etc. There are 6 figures, 1 table and 14 references: 13 Soviet and 1 English which reads as follows: H. R. Letner, A. B. Sauvageot, Relief of Residual Grinding Stresses by Annealing, Metal Progress, v.72, No.3, Sept., 1957.

1.1710 1454

32401
S/535/61/000/140/001/006
D240/D304

AUTHORS: Podzey, A.V., and Serebrennikov, G.Z., Candidates of Technical Sciences

TITLE: Control of residual stresses by heating components with subsequent quick cooling

SOURCE: Moscow. Aviatsionnyy institut. Trudy, no. 140. Tekhnologicheskiye metody povysheniya kachestva detaley i uzlov aviadvigateley, 1961, 5-15

TEXT: After a review of previous theoretical and experimental results, the authors consider the problem of the heat regime. It is assumed that after grinding 1) the radial stresses are negligible, 2) the axial stresses are nearly equal to the tangential stresses; moreover, 1) the coefficient of linear expansion remains constant during heating and cooling, 2) the mean integral value (over the cross section) of the elasto-plastic components of the axial deformations is equal to 0, 3) elastic incompressibility of the material is assumed. The authors

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Control of residual ...

obtain the following scheme: 1) For given conditions of cooling one finds the heat transfer coefficient in a reference book, 2) the value of Biot's criterion is determined with the aid of the above coefficient, 3) maximum design deformation is found for the required value of Biot's criterion from a graph given by the authors (design deformations are defined as the differences of complete yield deformations and the plastic components of the deformations due to previous stages of loading), 4) maximum intensity of design deformations at the surface is determined from a formula given by the authors, 5) for certain points, the maximum plastic component of design deformation intensity is determined, 6) resultant magnitude of residual stresses is calculated. When the heat transfer coefficient varies, different values of residual stress are obtained. Experimental verification of this method was made on eight specimens; two were only ground, two were ground and heated to 700°C, with quick cooling in a 10% solution of NaCl, two were cooled and then ground and the last two were left in the initial state. A graph of the results is given. There are 5 figures and 7 references, 6 Soviet-bloc and 1 non-Soviet-bloc. The reference to the English-language publication reads as follows: H.R. Letner and A.B. Sauvageot, Metal Progress, 72, no. 3, (1957).

Card 2/2

SHISHKIN, G.M., kand.tekhn.nauk

Selecting conditions of rapid cooling for the control of residual thermal stresses. Metalloved. i term. obr. met. no.10:37-43 O '61. (MIRA 14:1)

1. Moskovskiy aviatsionnyy institut.
(Steel—Quenching)
(Thermal stresses)

S/032/62/028/009/003/009
B104/B102

17, 1230,

AUTHOR: Serebrennikov, G. Z.

TITLE: Experimental determination of residual stresses in thin shafts

PERIODICAL: Zavodskaya laboratoriya, v. 28, no. 9, 1962, 1108 - 1112

TEXT: Residual stresses in thin shafts are calculated from the deformations of the shafts which arise during the cutting out of small longitudinal grooves. Deformation of the shafts having a ratio of length to diameter between 15 : 1 and 20 : 1 is measured by two different methods. With longer shafts it can be determined according to the scheme shown in Fig. 1, calculating the residual stress from the deformation by means of the formula

$$\sigma_{oc} = \frac{ERU}{l_1(l_1 + 2l_2)}\left(\frac{df}{dh} + Bf\right). \qquad (4).$$

A and B are here nondimensional parameters depending on the shaft diameter

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Experimental determination of...

and on the groove. With shorter shafts the arrangement shown in Fig. 3 can be used and the residual stress can be determined from

$$\sigma_{oc} = \frac{ERU}{4l_1 l_3}\left(\frac{df_1}{d\bar{h}} + Bf_1\right). \qquad (9).$$

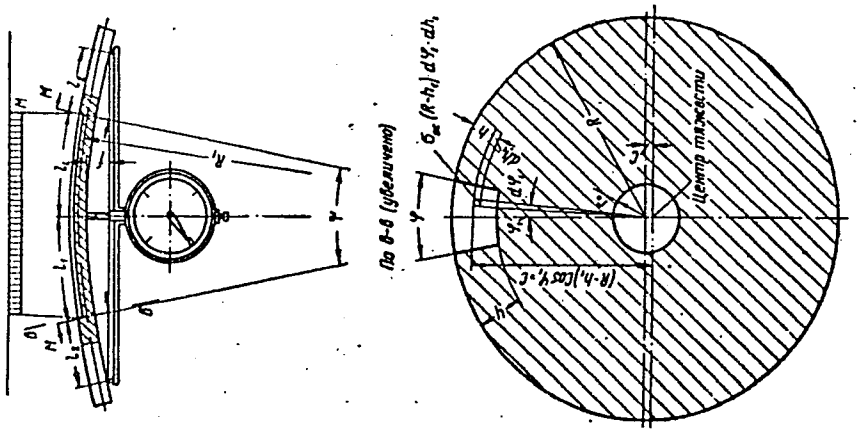
There are 4 figures and 2 tables.

ASSOCIATION: Moskovskiy aviatsionnyy institut (Moscow Aviation Institute)

Card 2/4

Experimental determination of...

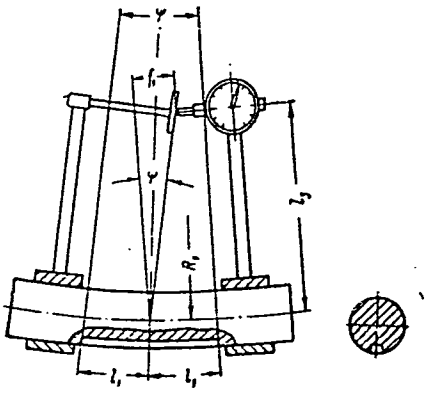
Fig. 1. Experimental arrangement for long shafts.



Card 3/4

Experimental determination of...

Fig. 3. Experimental arrangement for short shafts.



Card 4/4

ACCESSION NR: AP4008097 S/0145/63/000/009/0039/0049

AUTHOR: Serebrennikov, G. Z. (Candidate of technical sciences)

TITLE: Analytical investigation of residual stresses during multiple rapid cyclic heating cooling

SOURCE: IVUZ. Mashinostroyeniye, no. 9, 1963, 39-49

TOPIC TAGS: residual stress, plastic deformation, metal aging, aging, thermal stress, thermal residual stress, residual tensile stress, residual compression stress, tensile stress, compression stress, thermal aging, cooling stress

ABSTRACT: The residual stresses left after multiple heating and cooling of plates, hollow and solid shafts, and laminated plates and shafts were investigated analytically and to some extent experimentally (for steel plates only). No specific equations were derived, but arguments were based on methods of residual stress calculations found in the literature. Three cases were considered. (a) Multiple rapid cooling not leading to sign-changing plastic deformations. For this case it was found that repeated slow heating and rapid cooling did not change the residual stress distribution after succeeding cycles (assuming no stress relaxation between cycles). This was confirmed experimentally by heating steel plates to 670C in

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ACCESSION NR: AP4008097

15 min and quenching them in salt water to 4.5C. No significant change in residual stresses was found for 1-32 cycles. (b) Multiple rapid cooling which caused changes of sign of the plastic deformations in alloy EI437A for T_h = 700C, T_c = 0C, and $B_i = \alpha \Delta/\lambda$ (Δ = plate thickness) > 3.2. In this case the residual stress distribution changed after every cycle but could not be easily calculated because the changes in plastic stress affected the mechanical properties of the material after each cycle. (c) Multiple heating and cooling cycles of equal length. Since the coefficient of linear expansion increases with increasing temperature, its effective value and the corresponding strain are lower for the heating cycle than for the cooling cycle. In this case the residual stress alternates between a high and a low value, depending on whether an even or odd number of cycles has been completed. Orig. art. has: 6 figures and 3 formulas.

ASSOCIATION: Moskovskiy aviatsionnyy institut (Moscow Aviation Institute)

SUBMITTED: 21Jun62 DATE ACQ: 09Jan64 ENCL: 00

SUB CODE: MM NO REF SOV: 017 OTHER: 000

Card 2/2

ACCESSION NR: AT4043333 S/2572/64/000/010/0148/0162

AUTHOR: Serebrennikov, G. Z. (Candidate of technical sciences)

TITLE: Calculation of heat stresses and deformations in edges.

SOURCE: Raschety* na prochnost'; teoreticheskiye i eksperimental'ny*ye issledovaniya prochnosti mashinostroitel' ny*kh konstruktsiy. Sbornik statey, no. 10, 1964, 148-162

TOPIC TAGS: edge temperature stress, edge plastic deformation, edge stress calculation, heat stress calculation, edge deformation calculation

ABSTRACT: The author formulates and presents in detail an analytic program for calculating heat stresses and deformations in edges of various shapes. He arrives at a basic equation for determining axial deformation in edges of prisms with rectangular cross section in the presence of a transient symmetrical temperature field

$$\varepsilon_{zl} = \tilde{e}_l + \frac{\sigma_{zn}}{E_n} - \sum_{l=1}^{l-1} e^{\rho}_{zl\,max}, \qquad (1)$$

($\tilde{e}$ = temperature constituent of deformation intensity in uniaxially stressed state, σ_{zn} = initial stress along axis z (length), E_n=modulus of elasticity under stress corresponding to

Card 1/2

ACC NR: AP7006674 (N) SOURCE CODE: UR/0145/66/000/010/0056/0061

AUTHOR: Serebrennikov, G. Z. (Candidate of technical sciences, Lecturer)

ORG: None

TITLE: Selection of accelerated cooling conditions with regard to concentration of stresses at the edges of transverse holes

SOURCE: IVUZ. Mashinostroyeniye, no. 10, 1966, 56-61

TOPIC TAGS: cooling, blade cooling, turbine blade, stress concentration, thermal stress

ABSTRACT: The concentration of residual thermal stresses at the edges of transverse holes in thin walls is analytically studied. These edges are simultaneously operational stress concentrators and frequently determine the strength of important components such as the fire tubes of combustion chambers with holes for air supply and perforated turbine blades. Expressions are derived for computing the temperature fields, thermal stresses and static deformations in thin walls with transverse holes of a given radius. The concentration of residual stresses at the edges of these holes is studied as a function of cooling rate, the ratio of the heat-transfer coefficient at the surfaces of the hole and wall, and geometric dimensions. The resultant formulas may be used for selecting cooling conditions. The article was presented for publication by Doctor of technical sciences A. V. Podzey, Professor at the Moscow Aviation Institute. Orig. art. has: 3 figures, 3 formulas.

SUB CODE: 20/10 SUBM DATE: 14Jun65/ ORIG REF: 005

Card 1/1 UDC: 621.74

SEREBRENNIKOV, I.

2-58-5-11/17

AUTHORS: Yerokhovets, I., Chairman and Serebrennikov, I., Rayon Inspector

TITLE: On the Importance of Centralizing the Registration and Statistics at the District Inspectorate of TsSU USSR (O znachenii tsentralizatsii ucheta i statistiki v rayonnoy inspekture TsSU SSSR)

PERIODICAL: Vestnik Statistiki, 1958, Nr 5, pp 76 - 77 (USSR)

ABSTRACT: Information is presented on the activities of the TsSU USSR District Inspectorate of the Altay kray, where the centralization of statistics on agriculture, national education, public health and culture was brought about in 1957. The authors state that this new organization has proved satisfactory, although there are still some difficulties to be overcome.

ASSOCIATION: Kamenskiy rayispolkom Altayskogo kraya (Kamenskiy rayispolkom of the Altayskiy kray)

AVAILABLE: Library of Congress

Card 1/1

SEREBRENNIKOV, I.

Local industry is an important source of commercial products.
Sov.torg. no.3:13-16 Mr '59. (MIRA 12:4)

1. Zamestitel' ministra torgovli RSFSR.
(Small business)

SEREBRENNIKOV, I., khudozhnik-konstruktor

Consumers' goods for cultural and everyday use. Tekh. est. 2 no.7:22-24 Jl '65. (MIRA 18:8)

1. Spetsial'noye khudozhestvenno-konstruktorskoye byuro Leningradskogo soveta narodnogo khozyaystva.

SEREBRENNIKOV, I., inzh.

Wasy of saving steel in the construction of steel columns in consolidated industrial buildings. Prom.stroi. i inzh.soor. 3 no.2: 21-24 Mr-Ap '61. (MIRA 15:3)
(Steel, Structural)

SEREBRENNIKOV, I., kand.tekhn.nauk

Regulation of the design of steel elements is the decisive factor in saving steel. Prom. stroi. i inzh. soor. 4 no.1:4-7 Ja-F '63.
(MIRA 16:3)

(Steel, Structural)

KRYLOV, A. YA.; KUZNETSOV, A.M.; SEREBRENNIKOVA, I.I.; UGODCHIKOV, A.G. (Gor'ky)

"On the solution of some plane problems of applied elasticity with the aid of electrical simulation of conformal mapping".

report presented at the 2nd All-Union Congress on Theoretical and Applied Mechanics, Moscow, 29 Jan - 5 Feb 64.

VINOGRADOV, I.V.; GOT'YE, V.Yu.; GUREYEV, A.S.; SEREBRENNIKOV, I.M.; AVDEYEV, M.I., red.; LYUDKOVSKAYA, N.I., tekhn. red.

[Manual on medicolegal expertise] Spravochnik po sudebno-meditsinskoi ekspertize. Moskva, Medgiz, 1961. 251 p. (MIRA 15:1)

(MEDICAL JURISPRUDENCE)

SEREBRENNIKOV, Innokentiy Mikhaylovich; FEDOSEYEVA, A.N., red.; MIRONOVA, A.M., tekhn. red.

[Forensic medical study of skin scars] Sudebnoreditsinskoe issledovanie rubtsov kozhi. Moskva, Medgiz, 1962. 125 p. (MIRA 15:4)

(CICATRICES) (MEDICAL JURISPRUDENCE)

GANELINA, I.Ye.; ZIMOVAYA, N.G.; IL'INSKIY, O.B.; LEBEDEVA, V.A.; MARTYNYUK, V.K.; MERKULOVA, O.S.; MUSYASHCHIKOVA, S.S.; MYAGKAYA, I.P.; OSADCHIY, L.I.; POPOVA, T.V.; SEREBRENNIKOV, I.S.; TYUTRYUMOVA, Z.I.; CHERNICHENKO, V.A.; YAROSHEVSKIY, A.Ya.

Interoceptive component in the development of certain pathological states. Trudy Inst.fiziol. 8:240-253 '59. (MIRA 13:5)

1. Laboratoriya patologicheskoy fiziologii (zaveduyushchiy - V.S. Galkin [deceased]) Instituta fiziologii im. I.P. Pavlova AN SSSR.
(SENSES AND SENSATION) (PATHOLOGY)

SEREBRENNIKOV, I.V., inzh.

Assembling construction elements of a unique ship in a heavy-machinery plant. Prom. stroi. 38 no.10:34-36 '60. (MIRA 13:9)
(Machinery industry) (Precast concrete construction)

SEREBRENNIKOV, I.V. (Khar'kov)

Designing continuous crane girders on elastic supports. Stoi.mekh.i rasch.soor. 3 no.2:44-48 '61. (MIRA 14:5)
(Girders, Continuous)

SEREBRENNIKOV, I.V.; IVANOV, Ye.N.

Assembling bridge cranes in large plants with the help of structural elements. Prom. stroi. 39 no.5:52-53 '61. (MIRA 14:7)

(Cranes, derricks, etc.)

SEREBRENNIKOV, I.V. (Khar'kov)

Making more precise the calculations for the steel frame of a one-story shop. Stroi. makh. i rasch. scor. / n o.3:45-47 '62.
(MIRA 15:6)

(Factories--Design and construction)

L 11273-67 EWT(d)/EWT(m)/EWP(c)/EWP(k)/EWP(v)/EWP(l) IJP(c)
~~ACC NR:~~ AP6031839 (N) SOURCE CODE: UR/0381/66/000/003/0009/0012

40

AUTHOR: Kodyukov, V. M.; Ostretsov, L. A.; Serebrennikov, I. Ya.; Fradkin, G. M.

ORG: None

TITLE: A spectrometric method of gamma-ray flaw detection

SOURCE: Defektoskopiya, no. 3, 1966, 9-12

TOPIC TAGS: flaw detection, gamma spectrometer, collimation, radioactive source

ABSTRACT: The authors point out one of the possible uses of applied nuclear spectrometry in flaw detection for the case where the hardest gamma quanta are used as the source of information. Electronic methods may be used in the proposed application to produce a narrow beam for the best resolution. It is shown that the use of differential spectrometric methods for recording gamma radiation is effective in raising the utilization factor with respect to the radiation source and thus eliminating the necessity for a double collimation system (i. e. collimation of both source and detector). Measurements indicate an increase in the utilization efficiency by a factor of more than 2 which means an increase in the quantity of information in comparison with methods using collimated beams for identical radioactivity of the source. Orig. art. has: 2 figures, 4 formulas.

SUB CODE: ~~20~~ 13/ SUBM DATE: 23Sept65/ ORIG REF: 005

Card 1/1 jb UDC: 620.179.152

SEREBRENNIKOV, L. B.

PA 4T13

USSR/Oil Wells
Hoists

Feb 1947

"New Working Elevators," L.B. Serebrennikov, 2 pp

"Neftyanoye Khozyaystvo" Vol XXV, No 2

Description and Operating data of an elevator with an LT 2M-80 hoist (cross section) and one with an LT-11K hoist

4T13

SEREBRENNIKOV, L. B.

Traktor-pod''emnik LT2M-80; kratkoe rukovodstvo.

Moskva, Gostoptekhizdat, 1948. 102 p. illus.

Bibliography: p. (101)

(The LT2M-80 traction hoist; concise manual.)

DLC: TL229.D5S4

SO: Manufacturing and Mechanical Engineering in the Soviet Union, Library of Congress, 1953.

DERBAREMDIKER, M.I.; SEREBRENNIKOVA, K.I.; TERNOVSKIY, V.A.; Prinimali uchastiye: SHAROV, P.P.; NOVIKOV, L.E.; LUR'YE, B.I.; PIS'MEN, M.K.; KARABIN, A.I. [deceased]; ROSTIN, L.I.; PROLOV, V.P.; MELVEDEV, F.V.; GELIMKHANOV, S.G.; BONDAR', V.G.; TIMOFEYEV, P.I.; MENINA, L.V.; ARESKOV, F.F.; NIKOLAYEV, N.I.; YAROSLAV, T.Ye.; NUDEL'MAN, V.G.

Gasification of mazut under pressure in a steam-oxygen blast. Gaz. prom. 9 no.11:49-50 '64. (MIRA 17:12)

SEREBRENNIKOV, L.I., inzh.

Investigating the meat grinder grates made from ceramic metal.
Trudy NIIMesttoppproma no.17:221-229 '62. (MIRA 16:5)
(Ceramic metals) (Meat grinders)

IVANOV, Yu.M., doktor tekhn. nauk; MAZUR, F.F., nauchn. sotr.; POL'SHIN, D.Ye., kand. tekhn. nauk; FEDOROV, A.N., nauchn. sotr.; SEREBRENNIKOV, L.S., nauchn. sotr.; SMORODINOV, M.I., kand. tekhn. nauk; DROZD, T.A., red. izd-va; KOCHALINA, Z.S., tekhn. red.

[Instructions on work involving the handling of radioactive substances in research establishments of the State Committee on Construction of the Council of Ministers of the U.S.S.R.] Instruktsiia po rabote s radioaktivnymi veshchestvami v nauchno-issledovatel'skikh uchrezhdeniiakh Gosstroia SSSR. Moskva, Gosstroiizdat, 1963. 105 p. (MIRA 17:2)

1. Moscow. TSentral'nyy nauchno-issledovatel'skiy institut stroitel'nykh konstruktsiy. 2. TSentral'nyy nauchno-issledovatel'skiy institut stroitel'nykh konstruktsiy, Moscow (for Mazur). 3. Nauchno-issledovatel'skiy institut osnovaniy i podzemnykh sooruzheniy (for Fedorov, Smorodinov). 4. Nauchno-issledovatel'skiy institut stroitel'noy fiziki i ograzhdayushchikh konstruktsiy (for Serebrennikov).

SEREBRENNIKOV, L. V.

"The Problem of Gastrostomy," Khirurgiya, No. 8, 1949. Lect., 1st Surgical Clinic, Clinic of Children's Surgery, Odessa Med. Inst. -c1949-.

SEREBRENNIKOV, Leonid Vasil'yevich, traktorist, Deputat Verkhovnogo Soveta Kirgiz.SSR; DZYUBENKO, I.T., red.

[64 kopecks per centner; practices in growing inexpensive sugar beets] 64 kopeiki tsentner; opyt vyrashchivaniia deshevoi sakharnoi svekly. Frunze, Izd-vo M-va sel'.khoz. Kirgizskoi SSR, 1961. 18 p. (MIRA 17:9)

1. Sovkhoz imeni Karla Marksa Alamedinskogo rayona, Kirgiz.SSR (for Serebrennikov).

SEREBRENNIKOV, L.Ye.

Report on work of the Stomatological Department in Yessentuki, Stavropol Territory. Stomatologiia 35 no.4:63-64 Jl-Ag '56 (MIRA 10:8)

(YESSENTUIK--STOMATOLOGY)

SEREBRENNIKOV, L.Ye.

First Conference on Problems in Balneostomatology. Vop.kur. fizioter. i lech fiz. kul't. 23 no.6:568-569 N-D '58 (MIRA 11:12)
(MINERAL WATERS)
(STOMATOLOGY)

SEREBRENNIKOV, L.Ye.

First Conference on problems in balneostomatology. Stomatologiia 37 no.4:76 Jl-Ag '58 (MIRA 11:9)
(MOUTH--DISEASES)
(THERAPEUTICS, PHYSIOLOGICAL)

SEREBRENNIKOV, L.Ye.

Second Inter-Health Resort Conference on stomatology in the Caucasus Mineral Waters Region. Vop. kur. fizioter. i lech. fiz. fiz. kul't. 25 no. 5:471-473 S-O '60. (MIRA 13:10)

1. Glavnyy stomatolog Pyatigorskogo territorial'nogo upravleniya kurortov.
(CAUCASUS--HEALTH RESORTS, WATERING PLACES, ETC.)
(STOMATOLOGY)

TSEL'NIKMAN, V.I.; SEREBRENNIKOV, L.Ye.

Anesthetic lidocaine and its use in stomatological practice.
Stomatologiia 42 no.2:38-41 Mr-Ap'63 (MIRA 17:3)

1. Iz stomatologicheskogo otdeleniya (zaveduyushchiy L.Ye. Serebrennikov) polikliniki (zaveduyushchiy R.V. Khurgina) 27-y klinicheskoy bol'nitsy (glavnyy vrach A.G. Chipizhenko), Khar'kov.

SEREBRENNIKOV, L.Ye.

Interhospital Scientific Conference on Stomatology in Khar'kov.
Stomatologiia 42 no.4:107 Jl-Ag '63 (MIRA 17:4)

L 10436-66 EWT(d) IJP(c)

AM5023897 BOOK EXPLOITATION UR/ 534.1

Serebrennikov, Mendel' Girshevich; Pervozvanskiy, Anatoliy Arkad'-yevich

Manifestation of hidden periodicities (Vyyavleniye skrytykh period-ichnostey). Moscow, Izd-vo "Nauka," 1965. 244 p. illus., biblio. 7500 copies printed.

TOPIC TAGS: periodic function, vibration analysis, oscillatory process

PURPOSE AND COVERAGE: This monograph deals with procedures for finding hidden periodicities in various oscillatory processes. The book is intended for a wide range of specialists engaged in the mathematical description of oscillatory processes on the basis of observation data (oscillograms and other data). It is assumed that the readers have the usual Soviet engineering mathematics background and some knowledge of the theory of random processes and mathematical statistics.

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L 10436-66

AM5023897

9

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L 10436-66

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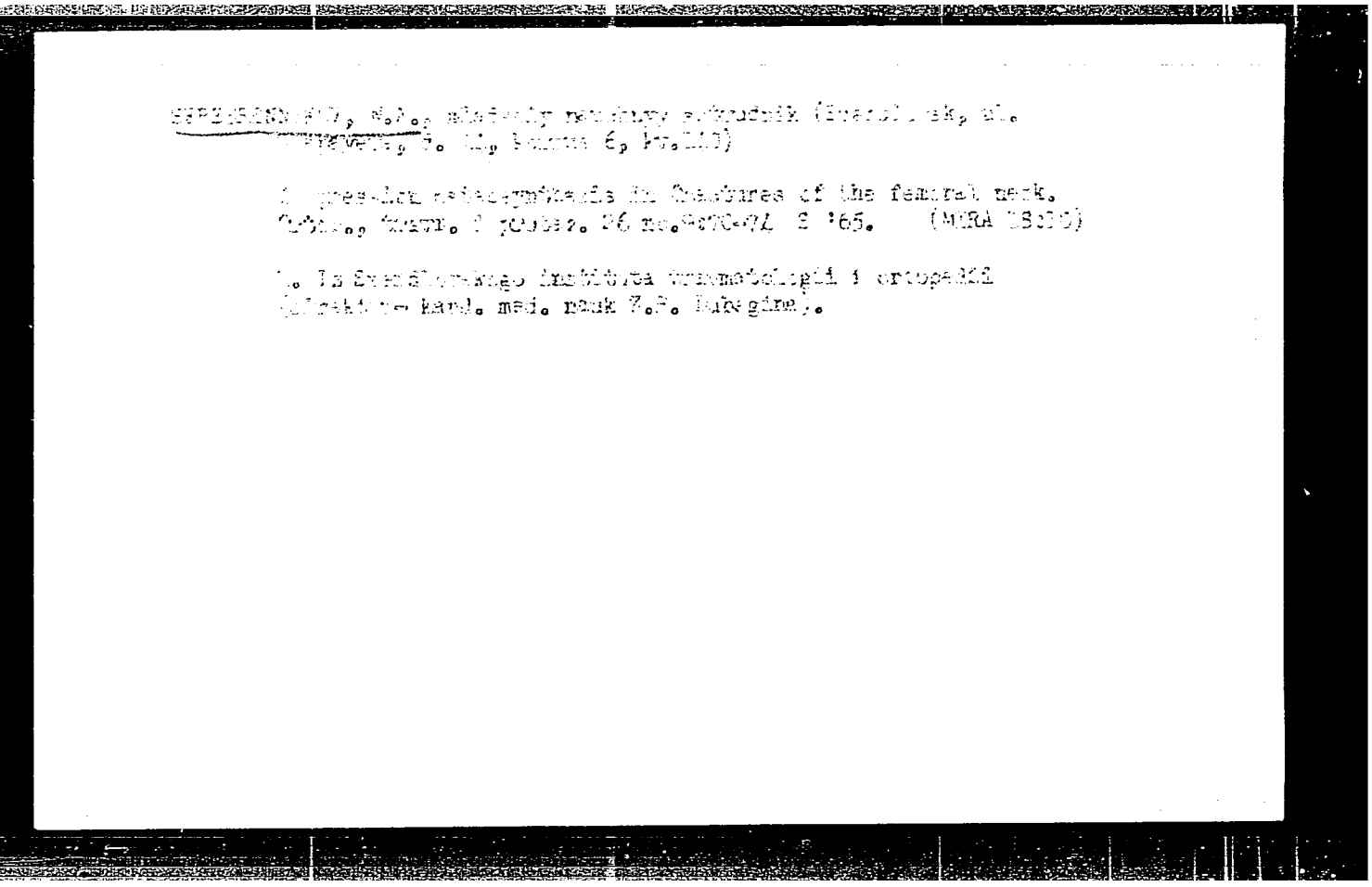
3

SUB CODE: MA, ME SUBMITTED: 04Mar65 NO REF SOV: 020

OTHER: 047

Card 3/3



SEREBRENNIKOV, N.A. (Sverdlovsk 63, ul. Chapeyeva, d. 14. korpus 6).

Device with screws in the treatment of fractures of the thigh and shin. Ortop., travm. i protez. 26 no.11:90-91 N '65. (MIRA 18:12)

1. Iz Sverdlovskogo instituta travmatologii i ortopedii (direktor - doktor med. nauk Z.P. Lubegina).

SEREBRENNIKEV, N. N.

P. V. Gel'd, A. G. Kologreeva, and N. N. Serebrennikev, The rate of reduction of silicon dioxide by carbon, carborundum, ferrosilicon and crystalline silicon. P. 1261

As a result of measuring the rates of reduction of silicon dioxide by carbon, carborundum, silicon and ferrosilicon under vacuum and at 1130-1370°C, it is shown that the intensity of the process is almost identical for silicon and ferrosilicon and much greater than in carborundum and carbon. This is explained by a weaker bond between the atoms in the first in comparison with the latter compounds.

Chair of the Theory of Metallurgical Processes of the Ural Polytechnical Inst. May 14, 1948

SO: Journal of Applied Chemistry (USSR) 21, No. 12 (1948)

SEREBRENNIKOV, N. N.

"The Problem of the Existence of Calcium Oxycarbide," Dok. AN, 68, No. 1, 1949. Mbr., Ural Polytechnical Inst. im. S. M. Kirov, -c1949-.

SEREBRENNIKOV, N.N.

26935. GELʹD, P.V., MARON, F.S., SEREBRENNIKOV, N.N. Kvoprosu o sushvhestvovanii oksikarbida kal'taiya. Doklady akad nauk SSSR, novaya seriya, T LXVIII, NO.1, 1949, s, 123-25-Bibliogr: 9 nazt.

SO: Letopis'Zhurnal'nykh Statey, Vol. 36, 1949.

SEREBRENNIKOV, N. N.

1 Jun 51

USSR/Chemistry - Oxides, Reduction

"Reduction of Metal Oxides With Solid Carbon," P. V. Gel'd, V. G. Vlasov, N. N. Serebrennikov, Ural Polytech Inst imeni S. M. Kirov, Sverdlovsk

"Dok Ak Nauk SSSR" Vol LXXVIII, No 4, pp 693-696

Expts for reducing chromium oxide and manganous oxide with graphite in vacuum installation corroborate existing viewpoint that reducing process consists of 2 stages, and rate of process is detd by 2d, slow stage, i.e., gasification of carbon with carbon dioxide. Disproves assumption that process is direct reaction between oxide and carbon without intermediate formation of carbon monoxide. Submitted by Acad S. I. Vol'fkovich, 2 Apr 51.

184T8

SEREBRENNIKOV, N. N.

5

3 Chem

Reactions of oxides and their compounds with solid carbon. P. V. Gel'd, V. G. Vlasov, and N. N. Serebrennikov. *J. Appl. Chem. U.S.S.R.* 25, 129–41(1952)(Engl. translation).—See *C.A.* 47. 4704*h*. H. L. H.

Chemical Abst.
Vol. 48 No. 9
May 10, 1954
General and Physical Chemistry

SEREBRENNIKOV, N. N.

USSR/Chemistry - Alloys

Jun 52

"Surface Tension of Iron-Silicon Alloys," P. V. Gel'd, N. V. Zaimskikh, N. N. Serebrennikov, Yu. P. Nikitin, Chair of Theory of Metallurgical Processes, Ural Polytech Inst im S. M. Kirov

Zhur Prik Khim, Vol 25, No 7, pp 687-695

The isotherm has a break in the region of comphs corresponding to stable FeSi. The rule of additivity can be applied to the system of ferrosilicon-acid slag. It is assumed that it applies semiquantitatively to the systems of metal-sulfide, slag-sulfide, and iron-acid slag.

263T42

USSR/Chemistry - Silicon Dec 52

"Heat Content and the Specific Heat of Silicon at High Temperatures," N. N. Serebrennikov and P. V. Gel'd, Ural Polytech Inst imeni S. M. Kirov

"DAN SSSR" Vol 87, No 6, pp 1021-1024

The heat content and the heat capacity of silicon were measured at high temperatures in a specially constructed adiabatic calorimeter. The results are given in a table. Presented by Acad S. I. Vol'fkovich 18 Oct 52.

240T11

SEREBRENNIKOV, N. N. AND GELD, P. V.

Heat capacity of Ferroalloys at High Temperatures
Tr. Uralsk. politekhn. in-ta. 49, 1954, pp 125-144

Heat capacity of silicon and of various ferroalloys was measured at a temperature range of 0 to 1,283°C by the calorimetric method. A deviation of the heat capacity of alloys from the rule of additivity was observed. (RZhFiz, No 5, 1950)

SO: Sum. No. 639, 2 Sep 55

Serebrennikov, N. N.

4

Characteristics of iron oxide dissociation. M. I. Kocknev, P. V. Gel'd, O. A. Esin, and N. N. Serebrennikov. *Trudy Ural. Politekh. Inst.* 1954, No. 49, 163–7; *Referat. Zhur., Khim.* 1954, No. 43823.—Partial pressure of O (P_O) of Fe_2O_3 was detd. at 800–1350°. In the region of small pressures (up to 1100°) the method of mol. efflux was used, in which samples of chemically pure Fe_2O_3 were placed in quartz ampuls and were degassed for 3–4 hrs. *in vacuo* at 600–800°. For temps. above 1150° P_O was detd. monometrically, porcelain app. being used. In the interval 1100–1430° $\log P_O = (-32,406/T) + 6.89$ and for temps. of 920–1100° $\log P_O = (-14,882/T) + 8.89$. The thermal effects of the reaction for the above are 148,290 and 68,084 cal./mole. At temps. 830 and 890–900° deviations from the above relations were observed; at these temps. P_O exceeds the calcd. values 100–300 times. The points of anomalous behavior correspond to transformation of Fe_3O_4. At 920° the red modification of Fe_2O_3 changes to black and at 817° α-Fe_2O_3 changes to γ-Fe_2O_3.

M. Hosch

CH 3

PM

SEREBRENNIKOV, N. N.

USSR/ Chemistry - Physical chemistry

Card 1/1 : Pub. 22 - 32/46

Authors : Serebrennikov, N. N., and Gel'd, P. V.

Title : The specific heat of the zeta-phase of the Fe-Si system

Periodical : Dok. . AN SSSR 97/4, 695-698, Aug 1, 1954

Abstract : Data are presented on the thermal dependence of the mean specific heat of an alloy containing about 53.4% Si. The polymorphism of the zeta-phase of the investigated system was determined by the results of the specific heat measurements carried out at a temperature range of from 0 - 1200°. It was established that the polymorphism is connected with the presence of two (not one) polymorphous conversions, the first one of which takes place in reverse direction at a slow rate. Two USSR references (1914-1952). Table; graphs.

Institution : The S. M. Kirov Ural Polytechnicum

Presented by : Academician S. I. Vol'fkovich, March 22, 1954

SEREBRENNIKOV, N. N.

USSR/Chemistry - Dilatometric analysis

Card 1/1 : Pub. 22 - 19/48

Authors : Gel'd, P. V. and Serebrennikov, N. N.

Title : Dilatometric investigation of the zeta-phase of a Fe - Si system

Periodical : Dok. AN SSSR 97/5, 827-830, August 11, 1954

Abstract : Dilatometric investigation of alloys containing 53.38% Si, i. e., consisting only of the zeta-phase, is described. The polymorphism and the transformability of the zeta-phase of a Fe - Si system, was confirmed by the dilatomograms. It was established that the friability of alloys rich in Si is connected with the presence in these alloys of a solid P and Al solution, which easily reacts with moisture. Four references: 3-USSR and 1-USA (1912-1954). Diagrams.

Institution : The S. M. Kirov Ural Polytechnicum, Sverdlovsk

Presented by : Academician S. I. Vol'fkovich, March 31, 1954

SEREBRENNIKOV, N.N.

3(8) 3-4E2c

*Thermal Expansion of Silicon and Its Alloys with Iron. F. V. Ustrd, N. N. Serebrennikov, and P. M. Sokolov (*Nauka i Metallov i Metallovedenie*, 1956, 2, (2), 244-253). [In Russian]. The coeff. of linear thermal expansion (α) of alloys of the system Fe–Si was measured by means of a Chevenard dilatometer with photographic recording in the range 1–69·2% Si from 100° to 1000° C. For Si and the more important alloys of the system (wt.-% Si = 41, 45·2, 50·2, 58·11, 69·56, and 75·03) accurate empirical formulæ are given for α. For other compn., α is given in tables and graphs. The region around compn. Si = 53·38 wt.-% (ξ phase; Lehoite) is subject to specially rapid change of α with compn., and was investigated with higher precision in both its modifications ξ₂ and ξ₁. 17 ref.—A. F. B.

Serebrennikov, N N

AID P - 4427

Subject : USSR/Heat Engineering

Card 1/1 Pub. 110-a - 7/13

Authors : Gel'd, P. V., Dr. Tech. Sci., B. B. Kuprovskiy and N. N. Serebrennikov, Kands. Tech. Sci. Ural Polytechnical Institute.

Title : Rate of temperature raise in steel at high temperatures.

Periodical : Teploenergetika, 6, 45-51, Je 1956

Abstract : Research on thermal capacity, conductivity and coefficient of expansion of steel containing from 1 to 4.4% Si at up to 1000°C is reported, with the aid of mathematical analyses. Results reportedly proved that thermal conductivity and temperature rate diminish with the increase of Si content in the steel. Five tables, 4 diagrams. Sixteen Russian references, 1935-1955; 2 English 1941, 1946; 5 German 1900-1935.

Institution : None

Submitted : No date

137-58-4-6549

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 4, p 33 (USSR)

AUTHORS: Davydov, K.N., Gel'd, P.V., Serebrennikov, N.N.

TITLE: The Specific Heat and Thermal Expansion of Alloys of Silicon and Iron, Chromium, and Manganese (Teployemkost' i termicheskoye rasshireniye splavov kremniya s zhelezom khromom i margantsem)

PERIODICAL: V sb.: Fiz-khim. osnovy proiz-va stali. Moscow, AN SSSR, 1957, pp 350-369. Diskus. pp 408-409

ABSTRACT: The temperature dependence of specific heat c was determined indirectly by measuring the heat content at various temperatures. The heating furnace had two windings and made it possible to raise the temperature to 1350°C. The calorimeter, of the mixture type, consisted of a massive copper block housed in a water bath. The error of measurement usually did not exceed 0.6%. Data on the heat capacity of 99.2% crystalline Si in the 0-1283° interval yielded an equation for the relationship of the mol. c of Si temperature:

$$C_p = 6.75 - 1.7 \times 10^{-3} T + 1.3 \times 10^{-6} T^2 - 1.37 \times 10^5 T^{-2}.$$

Card 1/3

The Specific Heat and Thermal (cont.)

For engineering calculations, the following formula is handier: $C_p=5.65+0.8\times10^{-3}T-10^5T^{-2}$. The c of lebowite (53.38% Si + Fe) revealed jumps in c at 300, 650, and 910°, the first two being related to the presence of the lebowite phase, and the 910° jump corresponding to phase transformation. The c of lebowite is: $C_{p_1}=0.1635+21.18\times10^{-6}T-2588T^2$ at 910° and $C_{p_2}=0.1410+52.5\times10^{-6}$ for 910-1200°. The c of monosilicide (34.48% Si+Fe) is described adequately by the equation: $C_p=0.131+46.14\times10^{-6}T-250.7\times T^2$ for 0-1200°. The c of the η-phase (Fe_3Si_2) shows a point of inflection at about 500°, corresponding to magnetic transformation, and a sharp rise in the curve at 1020° related to the appearance of peritectic decomposition of the η phase. In the 0-500° interval, $H_T-H_{273.1}=23.7+0.091T+54.0\times10^{-6}T^2-1411T^{-1}$, and at higher temperatures $H_T-H_{273.1}=35.75+0.021T+70.68\times10^{-6}T^2-12770T^{-1}$. Analogous equations are also presented for alloys containing 1.04, 1.73, 4.07, 22.56, 28.84, 35.15, 36.42, 44.46, 67.21, 78.49, 86.73, 91.91% Si. The authors have come to the conclusion that Kopp's law for the Si-Fe system is satisfactorily applicable to alloys high in Si, and practically inapplicable to alloys low in Si. A check has shown that the c of electro-

The Specific Heat and Thermal (cont.)

lytic Cr is well described by the equation suggested by Kelly: $C_p = 5.84 + 2.362 \times 10^{-3} T - 0.875 \times 10^{5} T^{-2}$, while for technical Cr better results are given by the equation $C_p = 0.178 - 0.12 \times 10^{-3} T + 0.091 \times 10^{-6} T^2 - 0.037 \times 10^{5} T^{-2}$. Equations for the temperature dependence of c were derived for the following alloys: Cr_3Si (15.18% Si), Cr_3Si_2 (28.1% Si), CrSi (36.55% Si), $SrSi_2$ (51.05% Si), and alloys of Cr containing 46, 36, 49.66, 62.0, 68.25, and 76.10% Si. Investigation of the c of the Mn-Si alloy system showed that Mn_3Si(14.55% Si) is polymorphic. Phase transformation occurs at appx. 620° and is accompanied by a Joule effect of the order of 8.0 cal/g. The coefficient of linear expansion α was measured in the 20-350° interval by means of the Chevenard photographically-recording differential dilatometer. For technically pure Si, the experimental data may be described by the equation $10^6 \alpha = 3.1395 + 1.914 \times 10^{-3} t - 0.0945 \times 10^{-6} t^2$. Analogous equations are adduced for a number of alloys of the Fe-Si and Cr-Si systems. The isotherms of the coefficient of linear elongation exhibit maxima in the regions of the η and ε phases of the Fe-Si system and in the 50% Si interval of the Cr-Si system.

Bibliography: 10 references.

L. B.

Card 3/3

1. Silicon alloys--Thermal expansion 2. Iron alloys--Thermal expansion
3. Silicon alloys--Specific heat 4. Iron alloys--Specific heat

GEL'D, P.V., prof.; SEREBRENNIKOV, N.N., inzh.; KORSHUNOV, V.A., inzh.

Fusion heat of silicides. Izv. vys. ucheb. zav.; chern. met. no.7:53-62 Jl '58. (MIRA 11:10)

1. Ural'skiy politekhnicheskiy institut.
(Silicides--Thermal properties) (Thermochemistry)

SEREBRENNIKOV, N.N.; KRENTSIS, R.P.; ~~GELYD, P.V.~~ GEL'D, P. V.

Ustanovka dlya isslekovaniya teplosoderzhaniya
tverdykh i zhidkikh splavov.

report submitted for the 5th Physical Chemical Conference on Steel Production.

Moscow 30 Jun 1959

KRENTIS, R.P.; GEL'D, P.V.; SEREBRENNIKOV, N.N.

Enthalpy and the heat of fusion of steels. Carbon and low-alloy steels. Izv. vys. ucheb. zav.; chern. met. no. 11:5-11 '60. (MIRA 13:12)

1. Ural'skiy politekhnicheskiy institut.
(Steel--Thermal properties)

S/137/61/000/002/001/046
A006/A001

Translation from: Referativnyy zhurnal, Metallurgiya, 1961, No. 2, p. 3, # 2A24

AUTHORS: Krentsis, R.P., Serebrennikov, N.N.

TITLE: Studying the Enthalpy of Ferroalloys at Temperatures up to 1,600°C

PERIODICAL: "Tr. Ural'skogo politekhn. in-ta", 1960, No. 105, pp. 136 - 141

TEXT: A description is given of the design of an adiabatic vacuum calorimeter of a preheating furnace and a cooler for determining the heat content ΔH of commercial ferroalloys. A Cr-Al addition alloy was investigated, containing (in %): Cr 63.91; Al 18.11; Fe 16.55; Si 0.67; C 0.024; and S 0.004. The low temperature branch of the $\Delta H - T$ curve in the 273 - 973°K range is described by interpolation polynomial: $\Delta H^{T}_{273.1} = - 27.25 + 0.0982\ T + 0.04492\ 10^{-3}T^{2} - 794.5\ T^{-1}$, and in the 1073 - 1473°K range holds the linear dependence: $\Delta H^{T}_{273.1} = - 64.6 + 0.203\ T$. The authors determined the temperature dependence of changes in ΔH of Fe-Ti of the following composition (in %): Ti 27.5; Al 6.74; Si 4.30; C 0.051; P 0.025 and S 0.020. On the $\Delta H - T$ curve a break is observed at 1,200°C caused

Card 1/2

S/137/61/000/002/001/046
A006/A001

Studying the Enthalpy of Ferroalloys at Temperatures up to 1,600°C

by the melting of polycomponent eutectics. For calculating ΔH of Fe-Ti in the 273 - 1,473°K range, the following equation is proposed: $\Delta H^{T}_{273.1} = -25.61 + 0.09809\ T + 0.03401 \cdot 10^{-3} T^{2} - 1011.7\ T^{-1}$.

B. L.

Translator's note: This is the full translation of the original Russian abstract.

Card 2/2

28 (5)

3/032/60/026/01/038/052
B010/B006

AUTHORS: Serebrennikov, N. N., [illegible], R. P., Gel'd, P. V.

TITLE: Device for Calorimetric Measurements in Vacuum at High Temperatures

PERIODICAL: Zavodskaya laboratoriya, 1960, Vol 26, Nr 1, pp 109 - 111 (USSR)

ABSTRACT: A device for determining the heat content and the heat of phase changes of metals and alloys at high temperatures ranging from 100 to 1700°C is described. The device consists essentially (Fig 1) of a Skuratov calorimeter (Refs 1,2), a furnace for sample heating, and an electric measuring unit. The furnace is arranged above the calorimeter and is thermally insulated from it. The sample is suspended in the furnace by a thin molybdenum- (or tungsten-) wire. On attaining the required temperature, the wire is fused by switching on an electric contact. The sample drops into a conical groove in a copper block placed in the thermostat. The temperature of the sample is measured by a Pt-Pt/Rh thermocouple. Since the system is hermetically sealed, tests can be carried out in a corresponding vacuum by applying a VN-461 pre-vacuum pump or a N-5 high-vacuum pump. Slight

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amounts of alcohol vapors are introduced into the system to ensure rapid heat exchange between sample and copper block. Heat exchange is thus completed in 12-15 minutes. Electrolytic copper samples (99.95% Cu) were used to calibrate the device. The temperature function of the change $\Delta H_o^{t^\circ C}$ in heat content of highly alloyed EI481 steel was determined (Fig 2). Up to 900°C measurements were carried out using the nonhermetical device described in references 1, 2, above 900°C, the present device was used. Above 1350°C the differential method was applied. Up to 1550°, the courses of the curves of the heat content and the specific heat can be described by equations. The steel investigated has a melting interval of 1350 - 1470°C. The heat of [illegible] is 65 cal/°C and the specific heat of the molten steel at 1470 - 1550°C is 0.194 cal/°C. There are 2 figures and 4 references, 3 of which are Soviet.

ASSOCIATION: Ural'skiy politekhnicheskiy institut im. S. M. Kirova (Ural Polytechnic Institute imeni S. M. Kirov)

S/148/61/000/003/001/015
A161/A133

AUTHORS: Serebrennikov, N. N., Gel'd, P. V., Krentsis, R. P.

TITLE: The enthalpy and melting heat of steels. Medium-alloy and high-alloy steels

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Chernaya metallurgiya, no. 3, 1961, 5 - 10

TEXT: The article is the second of two presenting the results of an experimental investigation. The first, by same authors, contained data on carbon and low-alloy steels (Ref. 5: Izv. vyssh. uch. zavedeniy. Chernaya metallurgiya, no. 11, 1960). A description of the testing equipment and techniques had been given in three former publications, two in 1954, and the latest in 1960 (Ref. 3: Zavodskaya laboratoriya, no. 1, 1960, same authors). Seven steel grades were studied, four of austenitic and three of ferrite-carbide base type. References are made to parallel studies by J. Pattison and T. Lonsdale (Ref. 4: J. Iron and Steel Inst., 183, 1956, 284) and I. Backhurst (J. Iron and Steel Inst., 189, 1958, 124). Alundum crucibles and the differential method were used for studies at temperatures above 1,300 - 1,400°C, and the enthalpy

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variations were determined with an ice chiller. The chemical composition of the investigated 7 steel grades is given in a table. A drastic difference was stated in the behavior of austenitic and ferrite-carbide base steel types, which is explained by the different heat capacity of gamma iron in austenitic steel and alpha iron in the ferrite-carbide grade (prior to the eutectic transformation temperature). No comparison is made with the data obtained by the mentioned non-Soviet experiments and a German one (Ref. 7: P. Oberhoffer, W. Grosse, Stahl u. Eisen, 47, 1927, 570) in view of different steel compositions tested, but considerable errors in the I. Backhurst data are pointed out. The conclusion is made that obviously the melting heat may vary considerably with variations of the steel composition. In the austenitic group the heat capacity of metal obviously depends mainly on the nickel content. The other conclusion is that the additivity rule can be considered as verified and the Kopp-Neumann rules may be applied for steel in the solid stage. There are 3 figures, 5 tables and 7 references: 4 Soviet-bloc and 3 non-Soviet-bloc. The two references to English-language publications read as follows: J. Pattison, T. Lonsdale, J. Iron and Steel Inst., 183, 1956, 284, and I. Backhurst, J. Iron and Steel Inst., 189, 1958, 124.

ASSOCIATION: Ural'skiy politekhnicheskiy institut (The Ural Polytechnic Institute)

SUBMITTED: June 11, 1960

SEREBRENNIKOV, N.N.; GEL'D, P.V.; KRENTSIS, R.P.

Heat content of ferroniobium and ferrotitanium at high temperatures. Izv. vys. ucheb. zav.; tsvet. met. 4 no.1:82-87 '61. (MIRA 14:2)

1. Ural'skiy politekhnicheskiy institut, kafedra fiziki.
(Iron-niobium alloys--Thermal properties)
(Iron-titanium alloys--Thermal properties)

3/149/61/000/004/001/008
A006/A101

25547

18.8100

AUTHORS: Serebrennikov, N. N.; Gel'd, P. V.

TITLE: Heat content and heat capacity of titanium at high temperatures

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Tsvetnaya metallurgiya, no.4, 1961, 80-86

TEXT: Heat content and heat capacity of titanium were studied by a number of authors. Interesting results were obtained by Backhurst [Ref. 6: I. Backhurst, J. Iron Steel Inst., 189, 124 (1958)]who determined true heat capacity of Ti at 600 to 1,080°C, and by Golutvin [Ref. 7: Yu. M. Golutvin, ZhFKh, 33 1798 (1959)] who studied the temperature dependence of Ti-content from 114.8 to 1128°C. However, the results obtained by these authors were considerably different for both low and high temperatures. Therefore it was imperative to carry out new measurements, since similar differences had been also observed in data presented by other authors. Information is given on the results of measurements performed. Commercial titanium (grade ВТ = 1Д [VT = 1D]) containing 0.08% Fe, 0.07% Si, 0.05% C, 0.03% N, 0.02% O and 0.005% H, and iodide Ti with not over 0.04% impurity content, were investigated. The temperature dependence of changes in the heat

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content $\Delta H_{t_1}^{t_2}$ was investigated in an adiabatic high-temperature vacuum calorimeter. At up to 1,200°C the measurements were made without additional protection of the metal, and at higher temperatures by the differential method with specimens in quartz ampoules. A comparison of the values determined with thermal characteristics of quartz glass permitted the calculation of the Ti heat content. Moreover, the dependence of heat content in the range of 0 to 27°C ($\Delta H_{t_1}^{o}$) was determined in a non-hermetic device and an ice thermostate. The temperature dependence of VT-1D Ti ($\Delta H_{273.1}^{T^oK}$) was studied at temperatures from 0 to 1,400°C. In the range of α Ti stability, i.e. below 850°C, the heat content of commercial Ti raised monotonously with higher temperatures ($C_{p298\alpha} = 0.1247$). At 850 - 880°C anomalies were observed analogous to those of phase transformations of the second order; $\Delta H_{273.1}^{T^oK}$ increased abnormally rapidly as a result of the polymorphous transformation of Ti; heat capacity was highest at about 860°C(close to 0.787 cal/g.degree or 36.6 cal/degree. g-at). Above the transformation point heat content of β Ti changes linearly with temperature within 900 - 1,400°C ($C_{p,\beta} = 0.167$ cal/g.degree). The heat content of iodide Ti was studied within 0 to 650°C, i.e. almost at its melting point. At 0 - 840°C heat content increases smoothly with rising temperature. From 850 - 880°C it raises abruptly and heat capacity attains its maximum value near 865°C (about 1.6 cal/g.degree). Within

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A006/A101

880 - 1,650°C heat content of β Ti changes linearly with temperature. It follows that $C_{p,\beta} = 0.1672$ cal/g.degree (about 8.0 cal/degree.g-at) and does not depend on temperature. This value is below that corresponding to the metastable α Ti at 880°C. As a result of $\alpha \rightarrow \beta$ transformation, heat capacity of Ti decreases spontaneously by over 10%. It is concluded that the thermal characteristics of iodide and commercial Ti are not very different. The information includes a discussion on data presented by other authors. There are 2 tables, 2 figures and 14 references: 9 Soviet-bloc and 5 non-Soviet-bloc.

ASSOCIATION: Ural'skiy politekhnicheskiy institut (Ural Polytechnic Institute)
Kafedra fiziki (Department of Physics)

SUBMITTED: October 24, 1960

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